Practice U1B L1 Function Notation Name: _____HR:_____

UNIT 1B
Lesson 1

Evaluate the following. SHOW THE SUBSTITUTION and USE PROPER NOTATION

1. Given $p(x) = 4x + 2$, find $p(5)$.

$P(5) = 4(5) + 2$
$= 20 + 2$
$= 22$

2. Given $q(x) = 6 - 3x$, find $q(3)$.

$q(3) = 6 - 3(3)$
$= 6 - 9$
$= -3$

3. Given $r(x) = \frac{x}{4} - 6$, find $r(8)$.

$r(8) = \frac{8}{4} - 6$
$= 2 - 6$
$= -4$

4. Given $s(x) = 4 - 7x$, find $s(-2)$.

$S(-2) = 4 - 7(-2)$
$= 4 + 14$
$= 18$

5. Given $t(x) = 3|x| + 2$, find $t(-5)$.

$t(-5) = 3|-5| + 2$
$= 3 \cdot 5 + 2$
$= 15 + 2$
$t(-5) = 17$
OR $-5, 17$

6. Given $u(x) = \frac{3x+1}{2}$, find $u(9)$.

$u(9) = \frac{3(9)+1}{2}$
$= \frac{27+1}{2}$
$= \frac{28}{2}$
$u(9) = 14$

7. Given $v(x) = x^2 + 3$, find $v(5)$.

$v(5) = (5)^2 + 3$
$= 25 + 3$
$= 28$

8. Given $w(x) = 2 - \frac{x}{3}$, find $w(6)$.

$w(6) = 2 - \frac{6}{3}$
$= 2 - 2$
$w(6) = 0$

9. Given $y(x) = -x^2 + 4x + 1$, find $y(2)$.

$y(2) = -(2)^2 + 4(2) + 1$
$= -4 + 8 + 1$
$= 4 + 1$
$y(2) = 5$

10. Given $p(x) = 4x + 2$, find $p(b + 3)$.

$P(b+3) = 4(b+3) + 2$
$= 4b + 12 + 2$
$P(b+3) = 4b + 15$

11. Given $q(x) = 6 - 3x$, find $q(2d)$.

$q(2d) = 6 - 3(2d)$
$q(2d) = 6 - 6d$

12. Given $s(x) = 4 - 7x$, find $s(m + 2)$.

$-7 \cdot m \quad -7 \cdot 2$
$S(m+2) = 4 - 7(m+2)$
$= 4 - 7m - 14$
$S(m+2) = -7m - 10$

13. $f(x) = 3x - 8$, find $f(x+4)$

$f(x+4) = 3(x+4) - 8$

$= 3x + 12 - 8$

$= 3x + 4$

14. $g(x) = 3|x-4| + 2$, find the $g(x+5)$

$g(x+5)$

$= 3|x+5-4| + 2$

$= 3|x+1| + 2$

15. $h(x) = 5x - 6$, find the $h(3x)$

$h(3x) = 5(3x) - 6$

$= 15x - 6$

16. $f(x) = x^2 - 5$, find $f(x+3)$

$f(x+3) = (x+3)^2 - 5$

17. $f(x) = -2x + 6$, find the $f(4x+1)$

$f(4x+1) = -2(4x+1) + 6$

$= -8x - 2 + 6$

$= -8x + 4$

18. $f(x) = -|3x| + 8$, find the $f(x+4)$

$f(x+4) = -|3(x+4)| + 8$

$= -|3x + 12| + 8$

Given the scenario, write the function. If what the variable represents is not filled in, then determine what the variable represents. Evaluate the function at the given value.

19. A ride-share service charges a flat pick-up fee of $3 plus $1.50 per mile driven.

m = number of miles driven

C = amount charged

$C(m) = 3 + 1.5m$

$C(20) = 3 + 1.5(20)$

$= \$33$ to go 20 miles

20. A mobile carrier charges a monthly base fee of $40 plus $0.10 for each text message sent over the limit.

t = number of texts over limit

C = amount charged

$C(t) = 40 + .10t$

$C(500) = 40 + .10(500)$

$= 40 + 50$

$= \$90$ for 500 texts

21. An intern earns $15 per hour at a local shop and receives a $50 sign-on bonus on their first day.

h = number of hours worked

P = pay

$P(h) = 15h + 15$

$P(40) = 15(40) + 15$

$= \$615$ for 40 hrs of work

22. A used lawnmower is bought for $300 and loses an estimated $25 in value each year.

y = # of years

V = Value

$V(y) = 300 - 25y$

$V(10) = 300 - 25(10)$

$= \$50$ after 10yrs

23. A swimming pool already has 1,000 gallons of water in it and fills at a rate of 40 gallons per minute.

m = # of minutes Filling

G = gallons of water in Pool

$G(m) = 1000 + 40m$

$F(25) = 1000 + 40(25)$

$= 2000$ gallons

24. A local gym charges a one-time enrollment fee of $75 and a recurring fee of $30 per month.

m = # of months

C = Charges/Cost

$C(m) = 75 + 30m$

$C(12) = 75 + 30(12)$

$= 75 + 360$

$= \$435$